Amendments to the Claims:

The listing of claims below will replace all prior versions, and the listings of claims in the application:

1-22. (canceled)

23. (currently amended) Membrane-electrode assembly for electrochemical devices, comprising

- an ion-conducting membrane having a front side and rear side,
- a first catalyst layer and a first gas diffusion layer on the front side and
- a second catalyst layer and a second gas diffusion layer on the rear side,

wherein the first gas diffusion layer has smaller planar dimensions than the ion-conducting membrane and the second gas diffusion layer has essentially the same planar dimensions as the ion-conducting membrane;
wherein the ion-conducting membrane has a surface that is not supported by the gas diffusion layer on the front side;
wherein peripheral edges of the gas diffusion layers, peripheral edges of the ion-conducting membrane, and [[of]] the surface of the ion-conducting membrane that is not supported by the gas diffusion layer on the front side are enclosed by a sealing material which comprises a thermoplastic polymer and is reinforced by an electrically insulating inorganic material which is incorporated into the sealing material as a filler during compounding.

24. (previously presented) Membrane-electrode assembly according to Claim 23, wherein the catalyst layer on the front side and the catalyst layer on the rear side of the ion-conducting membrane have different planar dimensions.

25. (previously presented) Membrane-electrode assembly according to Claim 23, wherein the catalyst layer on the front side and the catalyst layer on the rear side of the ion-conducting membrane have the same planar dimensions.

26. (canceled).

27. (previously presented) Membrane-electrode assembly according to Claim 23, wherein the catalyst layers on the front side and on the rear side each comprises one or more catalysts containing a precious metal.

28. (previously presented) Membrane-electrode assembly according to Claim 23, wherein the ion-conducting membrane has a thickness in the range of 10 to 200 μm and comprises an organic polymer selected from the group consisting of proton conducting perfluorinated polymeric sulphonic acid compounds, doped polybenzimidazoles, polyether ketones, polysulphones and ion-conducting ceramic materials.

29. (previously presented) Membrane-electrode assembly according to Claim 23, wherein each of the gas diffusion layers independently comprises a porous, electrically conductive material selected from the group consisting of carbon fibre paper, carbon fibre nonwovens, woven carbon fibre fabrics, metal meshes, and metallized woven fabrics.

30. (canceled).

31. (previously presented) Membrane-electrode assembly according to Claim 23, wherein the sealing material additionally impregnates the edge region of the gas diffusion layers to a width of at least 0.5 mm.

32. (currently amended) Membrane-electrode assembly according to Claim 23, wherein the thermoplastic polymer is selected from the group consisting of

polyethylenes, polypropylenes, polytetrafluoroethylenes, PVDF, polyesters, polyamides, polyamide elastomers, polyimides and polyurethanes~~, elastomers selected from the group consisting of silicones, silicone elastomers, EPDM, fluoroelastomers, perfluoroelastomers, chloroprene elastomers, fluorosilicone elastomers and/or thermoset polymers from the group consisting of epoxy resins, phenolic resins and cyanoacrylates~~.

33. (canceled).

34. (previously presented) Membrane-electrode assembly according to Claim 23, wherein the sealing material is integrally joined to a further circumferential polymer frame.

35. (previously presented) Membrane-electrode assembly according to Claim 23, wherein the sealing material comprises a plurality of layers of creep-resistant polymer materials which are joined both to one another and simultaneously to the membrane-electrode assembly by means of a layer of adhesive.

36. (previously presented) Membrane-electrode assembly according to Claim 35, wherein the creep resistant materials are polymers having a glass transition temperature (Tg) above 100°C.

37. (previously presented) Membrane-electrode assembly according to Claim 35, wherein the adhesive is a cold curing adhesive or a hot-curing adhesive selected from the group consisting of acrylates, cyanoacrylates, epoxy resins, EVA, polyethylene, and propylene.

38. (canceled).

39. (canceled).

40. (canceled).

41. (previously presented) Process for producing a membrane-electrode assembly according to Claim 23, wherein the membrane-electrode assembly is brought into contact with one or more prefabricated frames of sealing material and the regions of the membrane-electrode assembly and sealing material which are in direct contact are joined under pressure by means of an electric heating pulse.

42. (previously presented) Process for producing a membrane-electrode assembly according to Claim 23, wherein curing of the sealing material is effected by means of increased pressure and/or elevated temperature or by contact with atmospheric moisture and/or by means of elevated temperature.

43. (previously presented) Process for producing a membrane-electrode assembly according to Claim 34, wherein the integrally joining of the sealing material to the circumferential polymer frame is effected by means of heat-reactivateable polymers and curing takes place at an elevated temperature.

44. (canceled).

45. (previously presented) Membrane-electrode assembly according to Claim 23, wherein the electrically insulating inorganic material is chemically inert.

46. (previously presented) Membrane-electrode assembly according to Claim 23, wherein the electrically insulating inorganic material comprises glass fibers or glass spheres.

47. (previously presented) Membrane-electrode assembly according to Claim 23, wherein the content of the electrically insulating inorganic material is in the range from 10 to 30 weight %.